

We claim:

1           1. A roll assembly for a rolling mill comprising:  
2           a roll shaft;  
3           a mill roll driven by said roll shaft; and  
4           a first toothed ring fixed on said roll shaft and a  
5       second toothed ring interdigitated and coaxial with said first  
6       toothed ring and fixed on said mill roll whereby said toothed  
7       rings transmit torque between them.

1           2. The roll assembly defined in claim 1 wherein said  
2       first toothed ring is mounted on an end face of an axial end of  
3       said roll shaft and said second toothed ring is mounted on an end  
4       face of an axial end of said mill roll.

1           3. The roll assembly defined in claim 2 wherein the  
2       teeth of said toothed rings are in a straight-tooth gear pattern.

1           4. The roll assembly defined in claim 2 wherein at  
2       least one of said toothed rings is affixed to the respective end  
3       face by a plurality of pins.

1               5. The roll assembly defined in claim 4 wherein said  
2 pins have axes parallel to a common axis of said toothed rings.

1               6. The roll assembly defined in claim 5, further  
2 comprising generally conical centering formations centering said  
3 shaft with respect to said roll.

1               7. The roll assembly defined in claim 6 wherein said  
2 conical centering formations include a conically tapered  
3 projection on one of said axial ends fitting into a conically  
4 tapered recess on the other of said axial end and receiving said  
5 projection.

1               8. The roll assembly defined in claim 7 wherein said  
2 projection is formed on said shaft and extends into said roll to  
3 a depth which is at least 30% of the axial length of said roll.

1               9. The roll assembly defined in claim 8, further  
2 comprising a screw connection between said roll and said shaft.

1               10. The roll assembly defined in claim 9 wherein said  
2 screw connection has a single screw coaxial with said shaft and  
3 said roll.

1               11. The roll assembly defined in claim 10, further  
2 comprising a seal between the roll and the shaft.

1               12. The roll assembly defined in claim 1 wherein said  
2 roll is a roll of a planetary cross-roll mill and said first  
3 toothed ring is mounted on an end face of an axial end of said  
4 roll shaft and said second toothed ring is mounted on an end face  
5 of an axial end of said mill roll.

13. The roll assembly defined in claim 12 wherein the  
teeth of said toothed rings are in a straight-tooth gear pattern.

1               14. The roll assembly defined in claim 12 wherein at  
2 least one of said toothed rings is affixed to the respective end  
3 face by a plurality of pins.

1               15. The roll assembly defined in claim 14 wherein  
2       said pins have axes parallel to a common axis of said toothed  
3       rings.

1               16. The roll assembly defined in claim 12, further  
2       comprising generally conical centering formations centering said  
3       shaft with respect to said roll.

1               17. The roll assembly defined in claim 16 wherein said  
2       conical centering formations include a conically tapered  
3       projection on one of said axial ends fitting into a conically  
4       tapered recess on the other of said axial end and receiving said  
5       projection.

1               18. The roll assembly defined in claim 7 wherein said  
2       projection is formed on said shaft and extends into said roll to  
3       a depth which is at least 30% of the axial length of said roll.

1               19. The roll assembly defined in claim 12, further  
2       comprising a screw single screw coaxial with said shaft and said  
3       roll for connecting said roll to said shaft.

1               20. The roll assembly defined in claim 12, further  
2 comprising a seal between the roll and the shaft.